

IN THE CLAIMS

The claims are as follows:

Claim 1 (Previously presented): An aqueous paper size composition, which comprises:

dispersed polymer particles;

at least one degraded starch having a molecular weight Mn of from 500 to 40,000;

at least one water soluble catalyst; and

at least one complexing agent;

wherein

the dispersed polymer particles comprise a copolymer consisting of

(a) from 50 to 99% by weight of styrene and/or methylstyrene,

(b) 1 to 50% by weight of 1,3-butadiene and/or isoprene and

(c) from 0 to 40% by weight of other ethylenically unsaturated copolymerizable

monomers, the sum of the monomers (a), (b) and (c) always being 100%,

the copolymer is obtained by free radical copolymerization in the presence of from 10 to 40% by weight, based on the weight of monomers (a), (b) and (c), of the at least one degraded starch having a molecular weight Mn of from 500 to 40,000,

the at least one water soluble redox catalyst comprises hydrogen peroxide and at least one heavy metal salt selected from the series consisting of cerium, manganese and iron(II) salts, and

the mean particle size of the dispersed polymer particles is from 50 to 100 nm.

Claim 2 (Previously presented): The paper size composition as claimed in claim 1, wherein the copolymer consists of (a) styrene and (b) 1,3-butadiene.

Claim 3 (Previously presented): The paper size composition as claimed in claim 1, wherein a solids content is from 10 to 50%.

Claim 4 (Canceled).

Claim 5 (Withdrawn): A process for the preparation of aqueous copolymer dispersions based on vinylaromatics and butadiene by copolymerization of vinylaromatics and butadiene in an aqueous medium in the presence of starch and water-soluble redox catalysts, wherein

- (a) from 0.1 to 99.9% by weight of styrene and/or methylstyrene,
- (b) 0.1-99.9% by weight of 1,3-butadiene and/or isoprene and
- (c) from 0 to 40% by weight of other ethylenically unsaturated copolymerizable monomers

are used in the copolymerization, the sum of the monomers (a), (b) and (c) always being 100%, the copolymerization being carried out in the presence of from 10 to 40% by weight, based on the monomers used, of at least one degraded starch having a molecular weight M_n of from 500 to 40,000 and the redox catalyst used being a combination of hydrogen peroxide and at least one heavy metal salt from the series consisting of the cerium, manganese and iron(II) salts.

Claim 6 (Withdrawn): A process as claimed in claim 5, wherein a monomer mixture comprising

- (a) from 50 to 99% by weight of styrene and/or methylstyrene,
- (b) from 1 to 50% by weight of butadiene and/or isoprene and

(c) from 0 to 40% by weight of other ethylenically unsaturated copolymerizable monomers

is in an aqueous solution of an enzymatically degraded natural starch with a redox catalyst comprising hydrogen peroxide and heavy metal ions from the group consisting of the cerium, manganese and iron(II) salts.

Claim 7 (Withdrawn): A process as claimed in claim 5, wherein the copolymerization is carried out in the presence of a complexing agent for iron in concentrations from 1 to 5 mol per mole of iron salt.

Claim 8 (Withdrawn): A method for sizing comprising applying an aqueous polymer dispersion as claimed in claim 1 as an engine size and/or surface size for paper, board and cardboard.

Claim 9 (Canceled).

Claim 10 (Canceled).

Claim 11 (Withdrawn): Graphic arts paper produced by a method comprising sizing of the paper with the aqueous polymer dispersion as claimed in Claim 1.

Claim 12 (Withdrawn): The graphic arts paper as claimed in Claim 11 wherein the sizing is applied as an engine size.

Claim 13 (Withdrawn): The graphic arts paper as claimed in Claim 11 wherein the sizing is applied as a surface size.

Claim 14 (Previously presented): The paper size composition according to Claim 1, wherein the complexing agent is at least one selected from the group consisting of ethylenediaminetetraacetic acid, nitrilotriacetic acid, diethylenetriaminepentaacetic acid, polyaspartic acid, iminodisuccinic acid, citric acid, a alkali metal salt thereof and an ammonium salt thereof.

Claim 15 (Previously presented): The paper size composition according to Claim 1, wherein an amount of complexing agent is in the range of from 1 to 10 mole per mole of heavy metal ion present.